



COLORADO SPRINGS,  
COLORADO

#### Inside This Issue:

Advertisers .....	Page 11
Dits and Bits .....	Page 8
License Class Info .....	Page 9
Meeting Minutes .....	Page 3
Product Reviews .....	Page 10
Swapfest Schedule .....	Page 4
Words from the President .....	Page 8



Pikes Peak Radio Amateur Association, Inc.  
P. O. Box 16521  
Colorado Springs, Colorado 80935

**FIRST CLASS MAIL**

1 Renew before 12/31/96  
RON & LIZ DEUTSCH  
NK0P N0TUK  
4305 RIDGE LANE DR.  
COLO. SPGS., CO 80918



# Ø BEAT



## Pikes Peak Radio Amateur Association Officers and Directors

President—	Rob Røller	WB7WFI	4846 Herndon Circle	Colorado Springs	80920	282-0204
Vice-President—	Doug Moloney	WBØMHP	3817 Vaquero Circle S.	Colorado Springs	80918	590-2757
Secretary—	Warren Hickey	WØYNE	12895 Th Lane	Colorado Springs	80908	495-0471
Treasurer—	Mary Salas	KBØSHF	11710 Tracy Lane	Peyton	80831	749-0244
Ø-Beat Editor—	Jeff Boyes	NØJLH	2626 East Bijou Street	Colorado Springs	80909	633-5650
Board Member—	Ron Deutsch	NKØP	4305 Ridgeline Drive	Colorado Springs	80918	593-8352
Board Member—	Jeff Ryan	NØWFA	6721 Northface Lane	Colorado Springs	80919	260-6826
Board Member—	Gloria Ryan	NØZFX	6721 Northface Lane	Colorado Springs	80919	260-6826
Board Member—	Harry Russell	NØSFP	11710 Tracy Lane	Peyton	80831	749-0244

The Ø-BEAT is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association, Inc., PO Box 16521, Colorado Springs, Colorado 80935. For membership and subscription information see the last page of this publication. The Pikes Peak Radio Amateur Association meets monthly on the second Wednesday of each month at the Disabled American Veterans Hall, Chapter 28, 6680 Palmer Park Blvd. at 7 PM.

Check out the PPRAA page on the World Wide Web! Point your browser to: <http://rainbow.com/~ppraa/warcs/>

Deadline for submission of articles or advertisements is the 20th of each month. Submissions are accepted in any form. Articles should be sent directly to the Ø-BEAT Editor (email to [jboyes@kktv.com](mailto:jboyes@kktv.com) is preferred.) Permission is granted to reprint articles provided credit is given to both the author and this publication.

Monthly advertising rates: Full page, \$48; Half page, \$24; Quarter page, \$12; Business card, \$8. These rates are billed quarterly. Send your advertisement requests and payments to: PPRAA, PO Box 16521, Colorado Springs, Colorado 80935.

## License Exams

License examinations sponsored by the Pikes Peak Radio Amateur Association are held on the 2nd Saturday of February, April, June, August, October, and December.

Testing takes place at 9 A.M. at:

Denver Technical College  
225 South Union  
Colorado Springs

Everyone is seated on a walk-in basis. Those wishing to take an exam should bring the following items:

1. \$6.05 (preferably a check/money order made out to ARRL/VEC) for any exam other than element 1A or 2.
2. Picture identification.
3. A copy of your current amateur radio license, and/or a copy of any examination credit you have, as well as the signed original. **We keep the copies.**
4. A pen, pencils, and a calculator if you need one.

If you have any questions, call Erik Mugele, KGØXE at 596-5345. Please do not call Denver Technical College.

## Committee Chairpersons/Contacts

Activity	Doug Moloney	WBØMHP	590-2757
Auditing			
Historian	Al Craig	N2IWZ	594-9288
Interference	Bill Petty	NØNJX	591-2116
Membership	Les Borst	KCØNC	834-3905
Programs	Doug Moloney	WBØMHP	590-2757
Publicity	Aaron Pelouze	KD6FLM	282-9715
Public Service	Mike Stansberry	KØTER	836-1290
Swapfest	Harvey Hunter	WA3EIB	597-8964
Technical Instruction	Linda Hedges	KBØRKW	520-9238
VE Testing	Erik Mugele	KGØXE	596-5345
Ø-Beat Editor	Jeff Boyes	NØJLH	633-5650

## Other Organizational Liaisons

ARES Liaison	Mike Stansberry	KØTER	836-1290
CCARC Liaison	Cory Nelson	KBØNMH	528-6696
RACES Liaison	Larry Dunn	N9HSW	481-0369

## Reminder — General Membership Meeting

The next General Membership Meeting of the Pikes Peak Radio Amateur Association will be on the second Wednesday of this month at the Disabled American Veterans Hall, 6680 Palmer Park Blvd. The meeting will start at 7 PM.

## Zero Beat

### New Repeater by Doug Moloney

How long is a quarter wave antenna for PPFMA's (Pikes Peak FM Association) new repeater? It isn't 19 inches, it isn't 6 inches, but it is 2.4 inches. The PPFMA is planning to put a 1.2 GHz repeater on the air in the next few months and based on the interest in 1.2 GHz repeaters on our spending spree, we will have a program on 1.2 GHz repeaters at the April meeting of the PPRAA (Pikes Peak Radio Amateur Association). Warren Hickey, WØYNE, our Secretary and the Chairman of the PPFMA will give the presentation Wednesday, April 10th. Be sure to join us.

### El Paso County HF Roundtable

Sunday evenings just after the El Paso County RACES 7:30 PM (local time) HF net, on 28.385 MHz.

Everyone is invited to check in.

### Minutes from the March 1996 General Membership Meeting

The general membership meeting was opened at 7:00 p.m. by the President Rob Roller, WB7WHT, upon determining a quorum of the membership was present. The Board Members were introduced.

Mary, KBØSHP, gave the treasurer's report. Income for February was \$552.91 and expenses were \$803.54 leaving balance at the end of February of \$2660.28.

A motion was made and seconded to accept the report.

The minutes of the February meeting, as published in the Ø-Beat, were approved with the addition of Liddy's call.

### Committee Reports:

**Field Day:** Jeff, NØWPA, briefed that the HP recreation area would most likely be the Field Day site. Jeff also suggested that we might want to hold Field Day with the Mountain Amateur Radio Club. There were no objections by the members.

**Swapfest:** Harvey, WA3EIB, announced that tickets were on sale.

**Public Service:** The first public service event of the year will be the Walk for Mankind on Apr. 20.

**Program:** Tonight's club meeting program will be presented by Bdale Garbee, N3EUA on the Phase 3D Satellite.

**Education:** Skywarn training will be held at UCCS on April 6. Training will start at 8 am and go until 5 PM.

### Old Business:

Jeff, NØJLH, reiterated that the 20th was the cutoff for inputs to Ø-Beat. Jeff would like some help folding and addressing the Ø-Beats. The more work we do the more money we save on bulk mailing.

### New Business:

**Hammy Award:** Erik, KGØXE, presented this month's Hammy award to Jake, NØCYR, on behalf of Liddy.

The next Board meeting will be held at Ron, NKØP's home on Monday, Feb. 19th at 7:00 p.m. If you intend to attend please let Ron know.

Respectfully submitted by Warren, WØYNE, Secretary

### Minutes from the March 1996 Board of Directors Meeting

The Board of Directors meeting held at the home of Ron Deutsch NKØP, was called to order by Rob Roller, WB7WHT, at 7:00 p.m.

Present were: Rob, WB7WHT; Doug, WBØMHP; Warren, WØYNE; Mary, KBØSHP; Harry, NØSFP; Ron, NKØP; Jeff, NØWPA; Gloria, NØZFX; and Aaron, KD6FLM.

Jeff, NØWPA, briefed that he and Mike, KØTER, would be going to visit the HP recreation facility outside of Woodland Park to use for Field Day. He will brief at the

next meeting on the outcome of their visit.

The treasurer, Mary, KBØSHP, briefed on the ARRL membership process which allows the PPRAA to keep \$2 for each renewal and \$5 for each new member processed through the Association. However, the ARRL does hold back any awards or incentives that a member might otherwise be entitled. This seems counterproductive and Jeff will be contacting the League.

Aaron, KD6FLM, showed a sample flyer that he will be distributing to local businesses.

Mary provided copies of the PPRAA Insurance Policy to Rob, Jeff, and Doug in response to a query on coverage. The Board discussed the Insurance Policy. It was decided to ask the Rocky Mountain ARRL Office to review it. After a long discussion, Doug, WBØMHP, made a motion that would require the Board to approve any activity that would obligate the PPRAA Insurance Policy. The motion, seconded by Gloria NØZFX, passed unanimously.

The next meeting will be at Warren's home in Black Forest.

Being no further business the meeting was adjourned.

Respectfully submitted Warren Hickey, WØYNE.



**OM/YL  
LUNCH BUNCH**

In April of 1991 a group of Ham Op's were preparing for a demo on ham radio and met for lunch. We did this also the day of the event and enjoyed the get-together so much we have done it ever since. Come join us as noon time April 18th and help us celebrate. We'll meet at the Hometown Buffet, located in the Shops At The Bluffs, 3850 Austin Bluffs Parkway.

73,  
Rosie Calaway, WAØMNL  
471-9965

**Upcoming Swapfests**

**April 14th**  
Aurora Repeater Association  
Adams County Fairgrounds  
Call Judy, WDØHNP, 303-450-6910 or Janice, KA7TYU, 303-699-1944.

**July 20th**  
Pikes Peak Radio Amateur Association (PPRAA)  
Liberty High School, Colorado Springs  
Call Harvey, WA3EIB, 719-597-8964

**Where will you be on April 14?  
by Doug Moloney**

The better question is "where will WBØMHP be on April 14?" Starting in April, we are going to re-start the monthly PPRAA hidden transmitter hunts. For the first month, I will be providing the hidden transmitter. So the question will be "where...?"

Starting point will be the parking lot of the Radio Shack on Austin Bluffs Parkway, about 1 block west of Academy. I will start taking mileage at 1:45 PM with the hunt starting at 2:00 PM.

Rules are that I be on public land, accessible by normal 2-wheel drive car, in El Paso County, and NOT in Manitou Springs. The winner will be determined by the lowest reading on their odometer. NO SPEEDING! Traffic tickets will guarantee last place!

If you would like to participate but do not have any transmitter hunting equipment, come anyway. We are encouraging doubling up so that new folks can learn and help the driver with the antenna.

See You There!

73, Doug/WBØMHP

## Zero Beat

### Programs in Retrospect by Doug Moloney, WBØMHP

February 1996

I want to thank the team of fox hunters for presenting – from all reports I've heard – a very interesting and enlightening program on fox-hunting antennas. I regret my work prevented me from attending, being a fox hunter myself I would have enjoyed seeing it. For those who are new to ham radio, the fox is actually a hidden transmitter that the hunters attempt to find using direction finding techniques – we wouldn't want the SPCA to think otherwise, HI.

Topics covered were:

#### General Techniques

Dave, NØUVR - Use of Maps, Attenuators, and IF limiting

#### Directional Antennas

NØWPA - Body blocking  
NØNJX - HF loop and VHF Yagi  
NØUVR - quad and bow-tie  
WB7WHT - nulling dipole  
NØNJX - nulling dipole with bells and whistles  
NØWPA - bow-tie

#### Doppler and beyond

WA2OOD - doppler theory and DSP  
NØNJX - analog doppler (LED unit), GPS mapping and triangulation, and APRS

Thanks go the Greg Tarcza, WA2OOD, Dave Kurth, NØUVR,

Bill Petty, NØNJX, Jeff Ryan, NØWPA, and Rob Rolier, WB7WHT for preparing and presenting the various methods of direction finding. A special thanks to Greg for heading up the team.

March 1996

I want to thank Bdale Garbee, N3EUA for his very informative presentation on AMSAT's Phase-3D satellite – especially in view of his transportation misfortune. Bdale's car decided it didn't want to come to the meeting, but determined as Bdale can be, he used the 146.97 repeater and found a willing chauffeur who got him to the meeting in time for break.

Elaine, KBØRLF, heard Bdale's plea and came to his rescue.

Bdale gave a great overview of all aspects of the design, construction, and planned launch and orbit of the bird. He also gave us a detailed description of the GPS receiver he is working on for the satellite. If all goes well, Phase-3D will be in orbit and available for use sometime in 1997.

After holding about 20 interested folks spell-bound until about 9:15 PM, Bdale still had to get back to Garden of the Gods Road where his car was located, get it picked up and taken to the garage, and then get home to the Black Forest. Coming to his rescue for this part of his journey was Jeff,

NØWPA. Bdale tells me that sometime close to when the carriage turned back into a pumpkin, Jeff was driving in 2 inches of snow as he safely delivered Bdale at home. Writing this story reminds me of a song "Oh, What a Night!"

### Telecommunications Dictionary (Humor for engineers only!!!!)

Modem: What landscapers do to dem lawns.

Token Ring: A virtual engagement gift.

Ethernet: A device for catching the Ether Bunny.

Asynch: A place to wash your hands.

BBS: Tall tales told by insects that produce honey.

ASCII: Ancient god of Telecommunications. Rumored to give vast amounts of data to believers. Hence, the phrase "ASCII and you shall receive."

Block Parity: One heck of a good time.

Carrier Detect: Raison d'être for premarital blood tests.

File Transfer: Procedure followed by INFORMATION CENTER staff who are tired of their present jobs.

Hayes Compatible: Prone to riding with a grizzled old cowhand who sings off-key. Gene Autry is the industry standard.

Serial Interface: A spoon. Goes great with Cheerios.

Terminal Emulation: A function performed by a canary that lies on its back with its legs in the air.

XMODEM: A device on the losing end of a lightning encounter.



***The Future is CAM Radio - not HAM Radio!  
Is Your Equipment "Cellular" Ready?***

*[This article was submitted for publication anonymously...Ed.]*

Well, it was bound to happen. The cellular revolution has made its way into the world of amateur radio. Imagine receiving a call on your 2m radio from a long-lost amateur buddy in Massachusetts or California. Or imagine wanting to talk to your dad in Texas, so with a push of a button on your HT you hook up nearly instantly with him. All this is possible now that cellular amateur radio is here.

Had the developers of this system been able to incorporate some recent breakthroughs in

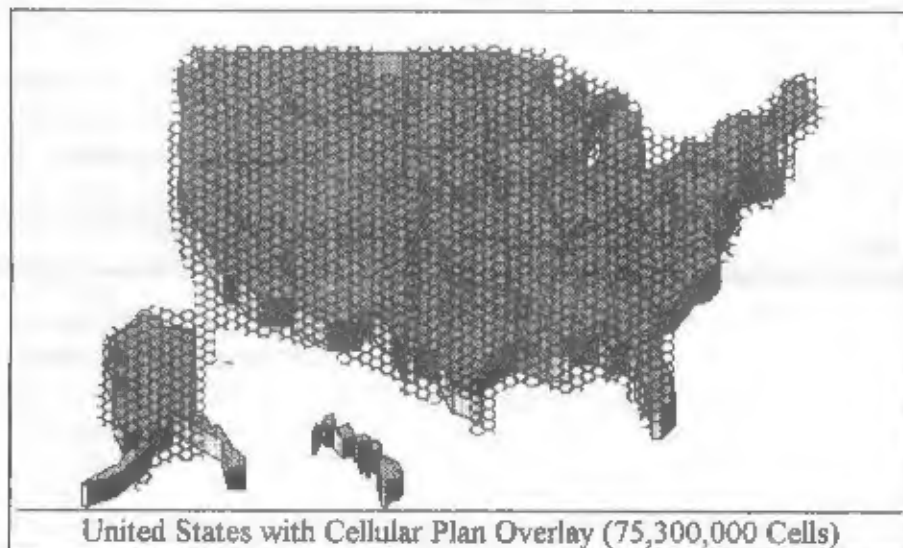
Whoever wants to participate in this network is already assigned identifier: their FCC-issued call sign. All that is required is to register your call sign with the network and you're in! Your call sign can be registered with the network in two ways. When you initially acquire your CAM radio, your call sign is entered into the network and you are assigned to a "home" repeater. This is the repeater that you normally monitor and can normally be expected to receive calls. This is known as static registration. The second way to

register, the dynamic registration, requires you to have already registered statically. There'll be more discussion on dynamic registration later.

How does it work? To initiate a call to a particular amateur, you simply punch in their call sign into the alphanumeric keypad in your CAM radio. That information is digitally transmitted to the repeater your monitoring. (The new CAM radios have special circuitry which mutes the digital tones, allowing only voice to pass

through to the speaker, so you don't hear any of the digital signaling. Amateurs with older radios, though, will have to purchase add-on digital signal processors if they don't want to hear these digital signals.) At the repeater site, your digital transmission is packaged into a digital packet containing the repeater's digital ID, the call sign of the amateur you're contacting, and your call sign. Then the packet, which only contains 24 bytes of data plus the frame headers and error-checking, is sent out over the Internet through the repeater's Internet port.

Through the same kind of addressing schemes currently in use on the Internet, the packet finds its way to the repeater on which the callee's call sign



technology, this system would have been available much sooner. As it is, many of the features of cellular phones and the Internet have been incorporated into a nationwide system generically known as Cellular AMateur Radio, or CAM radio. Most of the work has been quietly proceeding along for several years and it's ready for its debut. Here's what you'll soon be able to do.

The new radios being introduced will include additional hardware and software to transmit and receive digital data over same frequency you're now using for voice. Repeaters that you are now using will have to be modified for connection to the Internet in order for the repeater to be connected to the network.

is statically registered. At that repeater the packet is received through that repeater's Internet port and processed. A digital "page" is then transmitted over the air. When the callee's radio decodes the page it signals a QSO request to the amateur by either an audible or visual signal. The callee presses a reply button and a packet is transmitted to the callee's repeater, then over the Internet to the caller's repeater, and finally the caller's repeater sends the acknowledgment to the you and the path is established.

When both you and the callee have a direct digital path via the Internet to each other, each of you speak into your microphone as usual. At each repeater the incoming voices are sampled and digitized at 4800 bps and sent out in packets over the Internet at higher data rates to the other repeater. At the other repeater site the digital signals are converted back to analog and transmitted to the other amateur. Voila! Two-way voice communications via the Internet anywhere in the US!

How does only several seconds or several minutes sound for the entire process, from the QSO request to acknowledgment? This will all depend on the level of activity on the Internet, of course. Once the routing is established, though, the digital voice goes through at real time data rates. It appears that you are just talking through the repeater.

This begs the question: What if I'm not at my home repeater? That's where the cellular technology comes in and this is what's known as dynamic registration. When you turn on your transceiver your CAM radio automatically transmits a digital packet which includes your call sign and your home repeater's Internet identifier. If you're already on your home repeater no action is taken. If you're not using your home repeater a packet is sent out via the Internet to your home repeater notifying the home repeater where you are located. This registers you dynamically and temporarily with the non-home repeater.

When a call is placed to your call sign, it will first be routed to your home repeater. The home repeater checks to see if you are on the air first. If not, a NAK QSO is sent back to the caller. If you are on the air at the home repeater the call is sent to you as described above. If you are on the air at a non-home repeater, your home repeater knows this because of the dynamic registration and forwards the packets to the non-home repeater. There the non-home repeater transmits the QSO request and the call is completed.

How will the future of CAM radio develop? The future plans for the CAM radio network calls for more repeaters operating at lower power. No longer will it be required to have high power repeater atop tall buildings or tall mountains. The cellular nature of the system will begin to develop so that many low-power repeaters at practically any amateur's home with an Internet connection will be feasible. Level 2 of the CAM radio design, which will be implemented in the near future, will allow for automatic repeater seeking based on signal strength and quality. Once level two is implemented, the static registration will go away. Each time your radio is turned on, the CAM radio will seek out the nearest repeater with the best signal quality, send a packet identifying where you are and you'll be wired.

The cost? The nice part is the networking is already in place. The equipment, on the other hand, is just now coming off the assembly lines. You can expect to see prices starting about \$1,000 for a CAM HT. Not much different from the early cellular phones. Experts predict the prices to drop rapidly, though, and eventually the radios will be offered free when you buy a twelve-pack of AA NiCads at your nearest electronics hobby store. You will still be expected to pay the proposed \$40 activation fee, though. Get your checkbooks ready because I hear the first CAM radios will hit the market on April 1st.

# Pikes Peak Radio Amateur Association



## Dits and Bits

### Estate Sale (WDØK):

Drake R-4B, T-4XB, MS-4  
Radio Shack 21-622 Meter  
Shure 444 Desk Mic  
Three J-38 Keys  
CDE AR-10 Rotor (2 controls)  
VibroPlex Key #161062  
Two Headphone Sets  
Approx. 25' homemade tower  
3 Element Tri-band beam (Brand Unknown)  
Approx. 75' RG-8 coax  
GPX Compact stereo system  
Misc. books and magazines

Les, KCØNC, 634-3995

### For Sale:

Alinco DJ-580T Dual Band HT  
Alinco DR-112T 2 Meter VHF Xcvt  
Alpha Delta DX-A 1/4 Wave 160-40M sloper (NEW IN PKG)  
Atlas 300 W Oil Filled Dummy Load  
B&W 590G Grounding Ant Switch  
Icom IC-229H 2 Meter VHF Xcvt  
Icom SM-8 Dual Radio Desk Mic  
MFJ-949E Antenna Tuner  
Palomar RX-100 Ant Noise Bridge  
Realistic PRO2026 Mobile Scanner  
Radio Shack DSP40 Digital Signal Processor  
Van Gordon G5RV Multi-band antenna (NEW IN PKG)  
Viva 2442ef 2400 baud FAX/modem  
Tandy Model 102 Portable computer w/case, AC Adapter, modem cable

### ----- PACKAGE ONLY -----

Kenwood TS-50S Mobile HF Xcvt  
Kenwood AT-50 Auto Ant Tuner  
Kenwood PG-4M AT-50 Extension Cable

### ----- PACKAGE ONLY -----

Kenwood TM-732A Dual Band VHF/UHF Transceiver  
Kenwood PG-4K TM-732A 13 foot remote cable  
Kenwood TSU-7 CTCSS decoder module

Doug, 598-1441 after 6 pm only.

### Wanted:

1920's Transmitters  
Old Photographic Equipment  
Harry Gray, WAØTHB

### For Sale:

Kenwood TS440S - \$850.00 (With Ext. Tuner - \$950.00)  
Frank, KL7IPV, 570-1335 T-F 10AM - 5:30PM or 597-2406 Evenings.

### For Sale:

Tri-Band beam, Rotor, and 40 ft tilt-over tower - \$250.00  
Don KEØWC, 683-2883

### Welcome Our New Members

Richard Hitchner KBØUVC  
391-8318

## Words from the President:

By Rob Roller, WB7WHT

### WB7 What's Happening This...

... month? Well, there s a lot happening for everyone. Two, count em, two hamfests this month. So if you miss the one on the 6th (in Longmont) because of the Skywarn training you can hit the one on the 14th in Adams Co. If you're ambitious and get up there early enough on the 6th, you can do both the hamfest AND the Skywarn training. (Why haven't they raised the speed limit yet?) Buy something different at the hamfest and try a new mode. If you haven't done ATV, SSTV, satellites, packet, or some of the other modes, you re missing out on the diversity of the hobby! Or maybe you planning to build your own 100A power supply. You might find the parts you need. But, then again, there s nothing wrong with picking up another HT.

If you're into traffic handling the Colorado Traffic Jam runs from the 13th through the 21st. Check in on the Southern Colorado Traffic Net for details. The first two ARES public service events are on the 20th and 27th. See Mike, KØTER, or Jeff, NØWPA, for details on those.

If you need to upgrade from Novice, the Technician classes are starting on the 1st. See Al, ADØZ, or Linda, KBØRKW, for details. Their phone numbers are on the inside of the first page.



Need to take a test for upgrading to Amateur Extra Class? See Erik "Tests R Us" Mugela, KGØXE, for test details about testing on the 13th. Need some code practice to work up to Extra? Give me a call because I'm trying to do the same. Or do like I'm doing and listen to the ARRL code broadcast. Fortunately it's on while I'm driving to work and again when I'm driving home. So I'm getting about 10 minutes of practice a day.

Want to work all states or earn some other award? There's a lot of special event stations listed in this month's QST that can get you started. Did someone say "fox hunt"? I think it was Doug, WBØMHP. Give him a call for details. See? Something for everyone every day!

April also marks the half-way point for my term as president of the PPRAA. Personally I've been in the PPRAA just over five years and have been an amateur for 18 years. This is the first time I've been president of this kind of association and I'm learning a lot. And I'm enjoying it as well.

There's really a lot going on behind the scenes that most members never really see or hear about. If you really are interested or if you have something to get off your chest, remember that you can attend any board meeting. If the time's not right (always the first Monday after the PPRAA meeting) then give one of us a

call. Our numbers are also on the inside of the first page. Even though the board consists of both new and seasoned amateurs with the ability to communicate around the world via electromagnetic wave propagation, we still can't communicate across the kitchen via mental telepathy (although I think my wife can read my mind sometimes). So let us know what's on your mind.

And finally: as usual, Doug, WBØMHP, will have another great program lined up because it's what YOU wanted to see. Thanks to the survey Doug conducted several months ago, he has a pretty good idea of what the responding PPRAA members want to see at our meetings. If you didn't respond to that survey we'd still like to hear of any ideas you have for future programs.

See you at the meeting.

## PPRAA Sponsored License Classes To Start By Frank McNally, KFØWF

A general class will be conducted for those persons wishing to upgrade their Amateur Radio License. The classes will be held at the Tesla Society, 2220 East Bijou St., in Colorado Springs. The classes are offered at no cost to those wishing to attend; however, each class attendee must have a copy of the ARRL

"General Class License Manual" textbook which costs approximately \$15.00.

The classes will be held each Monday and Wednesday evening beginning at 6:00 p.m. on April 22nd and ending on May 15th, 1996. The class will cover International Morse Code and theory on amateur rules, regulations, operating practices, electronics, antennas and transmission lines. Those amateur's wishing to upgrade their license should be prepared to attend each class for the four week period.

Each attendee must know the entire Amateur Radio Morse Code set and should be able to copy Morse code at a minimum of 5 words per minute. In addition, each attendee should have successfully passed the written examination element 2 for Novice and 3A for Technician.

Those persons wishing to attend the courses should pre-register by contacting Allen Bailey at 597-8514 or Frank McNally at 596-8733 during the evening.



Hoppy Easter

**Product Review: DCI-146-4H  
Bandpass Filter**

**By Ben Baker, KB0UBZ,  
bbaker@bmsinc.com**

You're heading north on I-25, just passing County Line Road. You've been talking to your new found friend on 2-meters when it hits: squeals, beeps, and other noise. Then it hits you. You're in "Intermod Alley", that stretch of I-25 between Arapahoe Road and I-225 that makes your new ham radio unusable.

What you are hearing is intermodulation signal, AKA, intermod. Intermod is caused by high power signals that your radio can receive outside of its normal receive range. These signals are created by paging services and other radio services that need high-power radio signals to reach their clients. Although most common in metropolitan areas, intermod can occur anywhere.

Digital Communications, Inc., makes a device that will help reduce or eliminate intermod. Called the DCI-146-4H two-meter bandpass filter, it brings quiet to a normally noisy area.

This particular model is designed for 2-meters. The frequency range is 144 to 148 MHz with a passband loss of less than 1 dB. The DCI-146-4H can handle up to 200 watts while keeping the VSWR at a low 1.5:1. However, there is a warning: this is strictly for 2-meters. A warning comes with the unit that warns against transmitting at higher frequencies.

The filter will produce extremely high SWR's. The filter works so well that even monitoring the 440 band on a dual-band radio and antenna can be difficult. It should also be mentioned that unlike some filters, this is a passive filter. There is no power required for operation.

The true test of an intermod filter is to go to an area where there is a great deal of intermod. In Denver, some of the best places to test an intermod filter are either downtown or along I-25 around Arapahoe Road. This filter performed exceptionally well, blocking out easily up to 99% of these spurious signals.

The DCI-146-4H is not a small device. The literature lists the size as 12"x3"x5". Because it is placed in-line between the antenna and the radio and it does not require external power, the filter can be placed in a trunk or under a seat. The unit is equipped with two female PL-259 connectors so a patch cable is needed to connect to your radio. This is also not a rugged device, however. It can be "detuned" by dropping it.

The DCI-146-4H band pass filter runs \$89.00 at Ham Radio Outlet.

---

**Product Review:  
PAR Electronics Notch Filter**  
**By John Gubbins, N0VSE,  
n0vse@amsat.org**

I have found this little filter very effective at reducing intermod on

2-meters. I have tested it with 3 different radios, an Icom 820H satellite rig with 9913 coax going to a high gain vertical antenna, my Icom 3230H mobile and an Icom 2SAT HT, the latter hooked to a Larsen through the on-the-glass dual-bander mounted on a Volkswagen Corrado.

Intermod in the vicinity of I-25 and Arapahoe Road and in the vicinity of Cherry Creek Dam is horrible and getting worse every day. The 3230H was pretty good at hearing 2-meter repeaters through all the howls and shrieks, but it was very annoying. If I used the 2SAT hand held, the intermod completely covered the signals from repeaters.

I bought one of the little notch filters three or four months ago. Most of the intermod has been eliminated. I occasionally hear a squawk, but it is usually short lived and I can accept it.

I am currently using the HT in the car, a situation that had been in the past, untenable. Now with the filter, I rarely hear any intermod.

Another plus with this filter compared to bandpass filters is that it allows the use of 70-cm with no hassle. You literally just plug it into your feed line and forget it. It is also small in size.

By and large, I am very pleased with this filter. If you have any questions, please feel free to contact me either on the air or at my e-mail address.

### OEM Parts Inc.

Quality

Optical—Electronic—Mechanical Parts  
Buy—Sell—Trade—New & Used Surplus Items

3029 North Hancock Ave.  
Colorado Springs, CO. 80907  
(719) 635-0771 or 635-0772  
FAX (719) 475-2249

### Centennial Electronics RCA—GE Distributor

Tubes  
Solder Aids  
Capacitors

Test Equipment  
VCR/Stereo Accessories  
Tools

"Hard to Find Batteries and Tubes"

Ham & Senior Discount  
Wholesale—Retail

Hours: 8:30—1 Sat. / 8:30 — 5:30 Mon. — Fri.

2324 E. Bijou  
Colorado Springs, CO. 80909  
633-4666

### 12 Store Buying Power



8400 East Iliff, Unit 9  
Denver, Colorado 80231

(303)745-7373

(800)444-9476

24 hour FAX order line (303)745-7394

Joe KD0GA  
John N5EHP

Dean AC0S  
John KF0PQ



*Ora Marie Originals*  
CUSTOM DRAPES & WINDOW TREATMENT  
Club Jackets and Patches

ORA MARIE ROSE

N80IX

719-591-5756

### MILEY'S RADIO

Jess KD7AA  
719 W 7th St.  
Florence, Colorado 81226  
(719) 784-3040

All brands of new, used, and consignments.  
We trade and give you top trade-in price.  
We buy used ham equipment.

JOHN MAX  
President

Colorado Springs Wintronic Co.  
Wholesale Distributors  
Electronic Parts, Supplies & Equipment

2838 N. Prospect St.  
Colorado Springs, CO. 80907

Tel. (719) 636-1661  
FAX (719) 636-1663

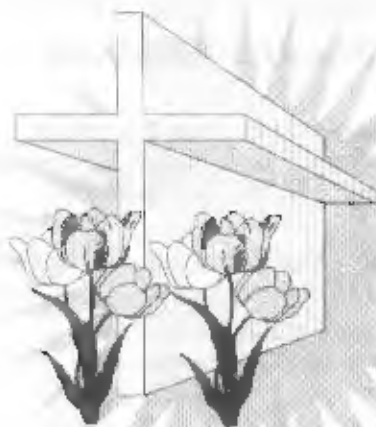
PLAQUE  
World

Laser Engraving

Award Plaques  
Custom Buttons  
Caps / Tee-Shirts  
Jackets / Signs  
Free Delivery

(719) 531-7907  
Fax 531-0153  
1-800-566-7960

Bob Snowden, NR00  
Owner



*Happy Easter*

**Membership Application**  
**Pikes Peak Radio Amateur Association, INC.**

P.O. Box 16521  
Colorado Springs, Colorado 80935

Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Call \_\_\_\_\_ LicenseClass \_\_\_\_\_ Telephone \_\_\_\_\_

Are you an ARRL member? Yes \_\_\_\_\_ No \_\_\_\_\_

**One year membership rates. (Year starts with the month you receive your first issue.)**

Full Member \$15.00 \_\_\_\_\_ Family Membership (same address) \$18.00 \_\_\_\_\_

Over 65 \$12.00 \_\_\_\_\_ Family Both over 65 \$12.00 \_\_\_\_\_

Associate (outside El Paso or Teller Co.) \$12.00 \_\_\_\_\_ Newsletter only \$12.00 \_\_\_\_\_

Additional Names: \_\_\_\_\_ Call \_\_\_\_\_ Class \_\_\_\_\_

**IF THIS IS A RENEWAL PLEASE CHECK HERE:** \_\_\_\_\_

**PLEASE TYPE OR PRINT CLEARLY!**

**Please note:** Please submit a completed application form along with your check to the treasurer. This applies to new membership as well as renewals. Thank you.